FIG. 1
(PRIOR ART)

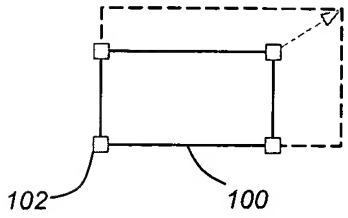


FIG. 2
(PRIOR ART)

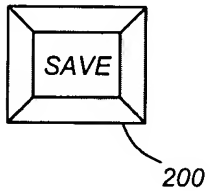
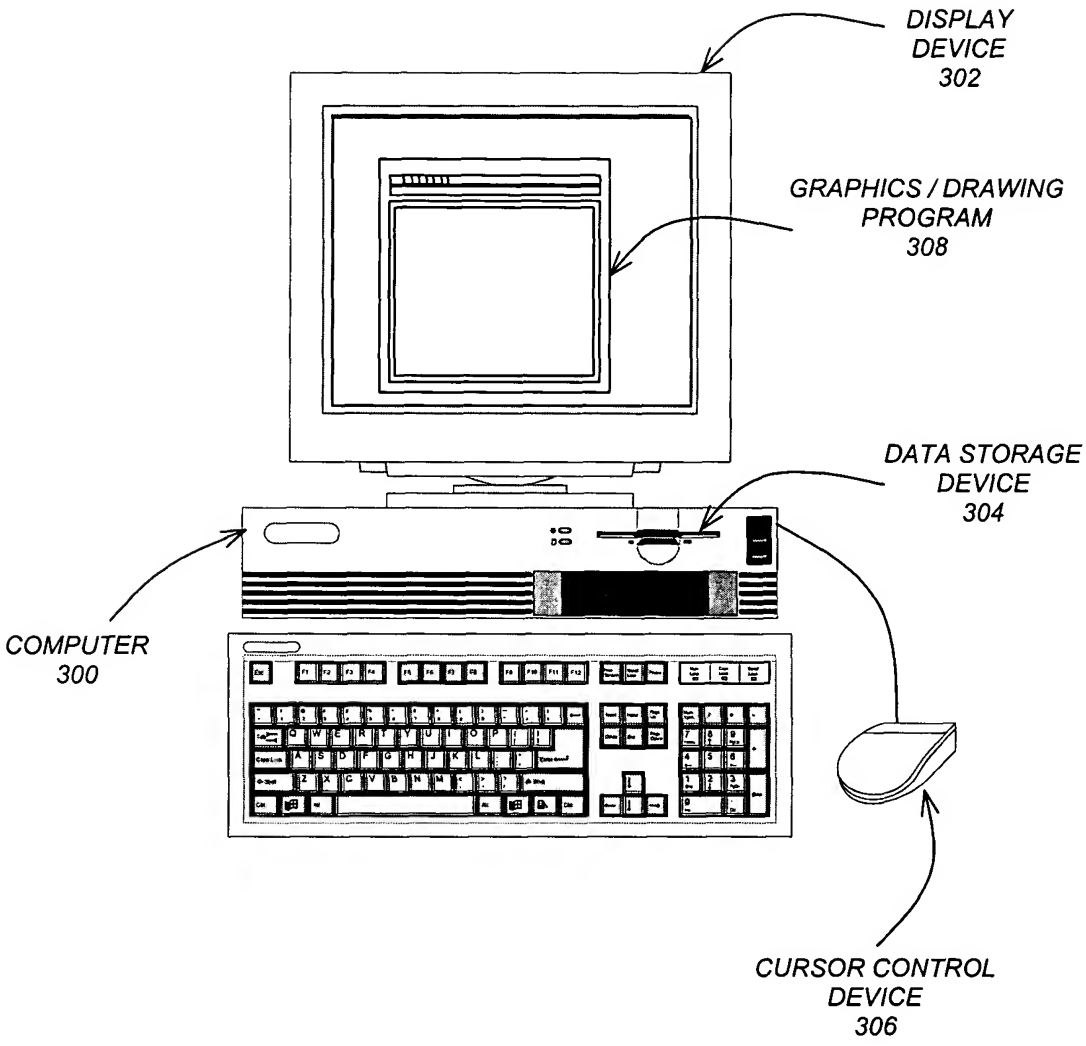


FIG. 3


DISPLAY DEVICE 302
GRAPHICS / DRAWING PROGRAM 308
DATA STORAGE DEVICE 304
COMPUTER 300
CURSOR CONTROL DEVICE 306

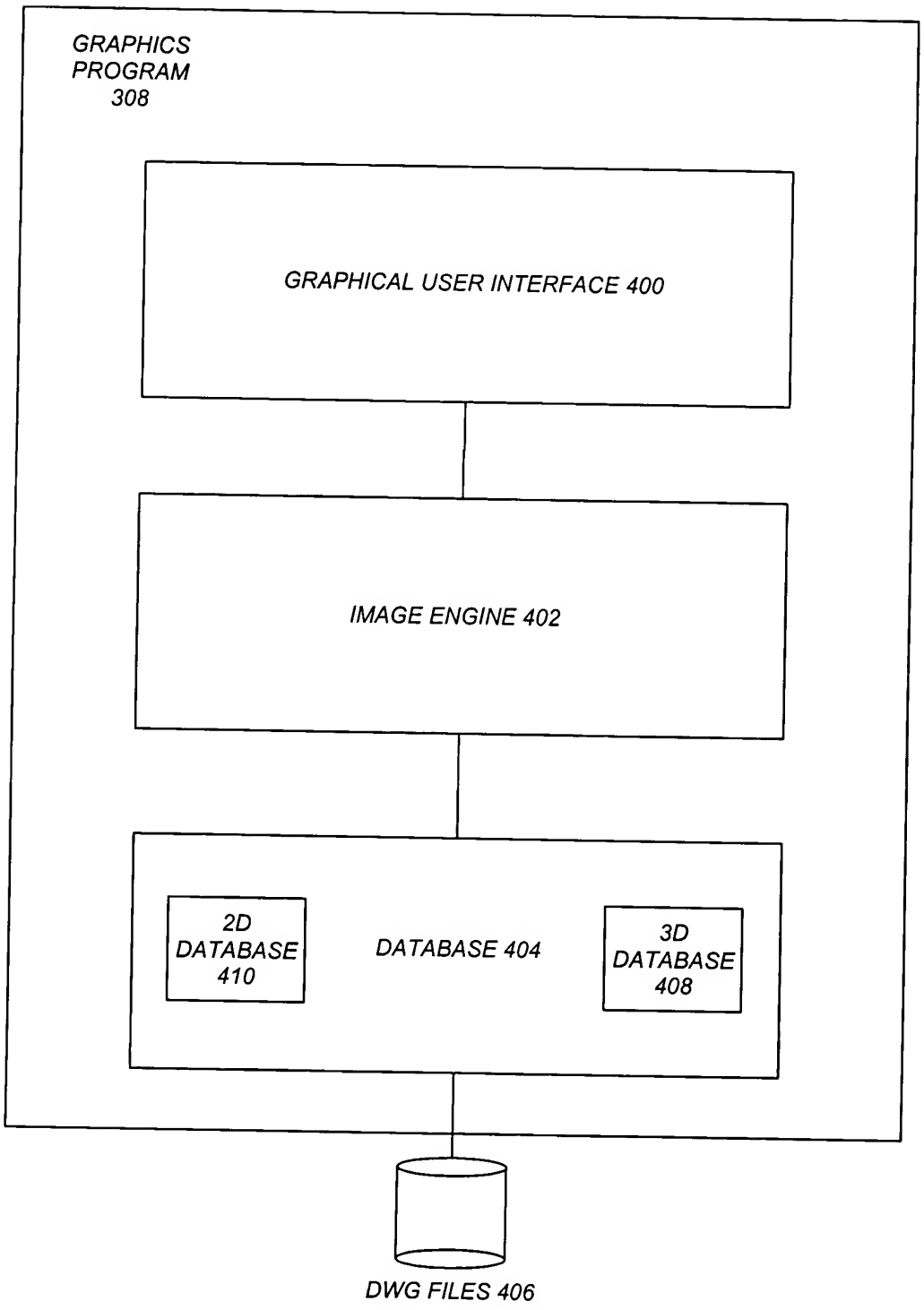

GRAPHICS PROGRAM 308
GRAPHICAL USER INTERFACE 400
IMAGE ENGINE 402
2D DATABASE 410
DATABASE 404
3D DATABASE 408
DWG FILES 406

FIG. 4

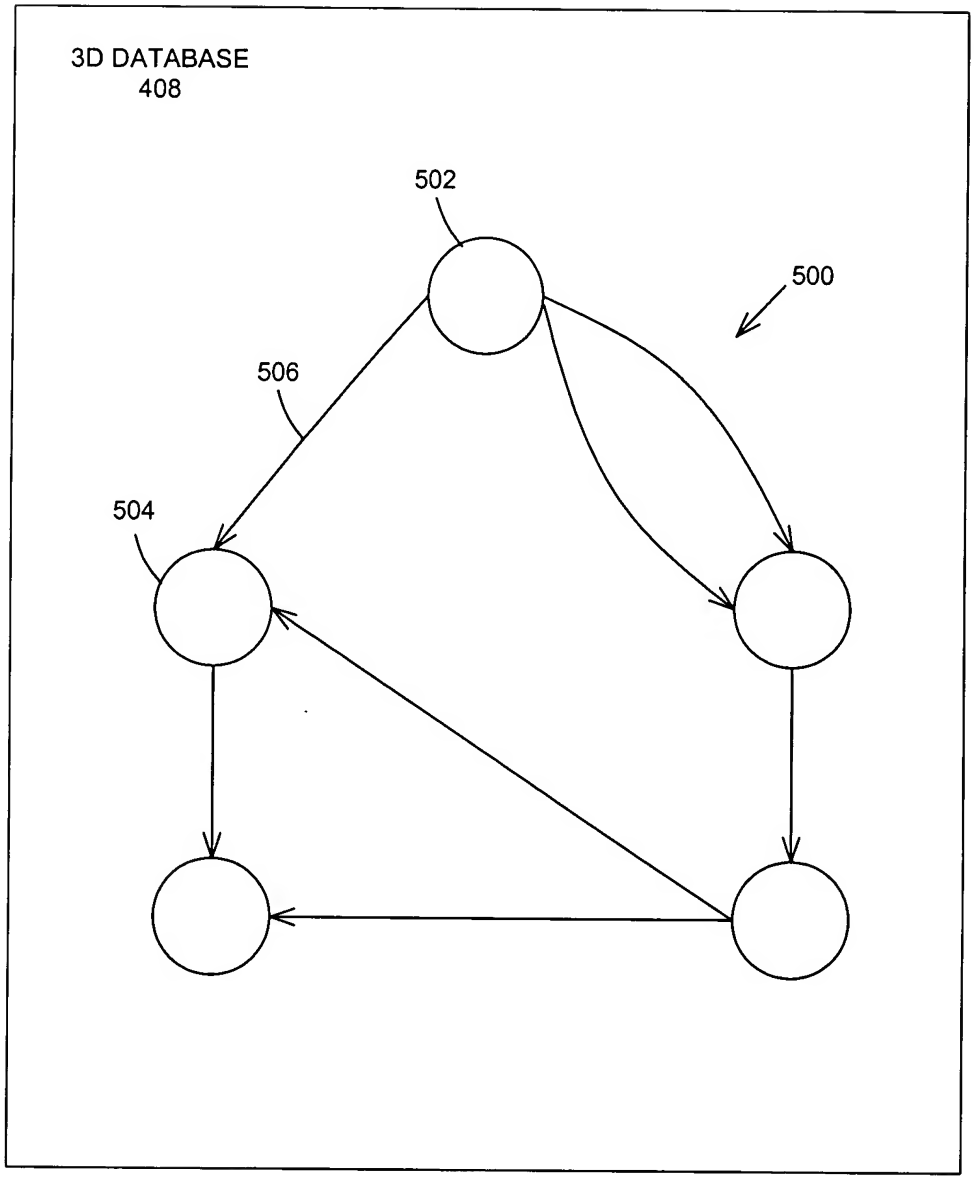


FIG. 5

FIG. 6A

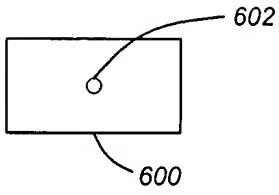


FIG. 6B

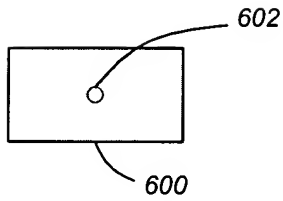


FIG. 7

Shape	Name	Description
	Diamond	Alignment to a line. e.g.
	Circle	Miscellaneous.
	Plus	Increment a value. Attach one object to another.
	Minus	Decrement a value. Detach one object from another.
	Arrow	Change direction.
	Command (Small Circle)	Execute a miscellaneous command. 3/4 the size of a normal Circle grip so it is unobtrusive.

FIG. 8A

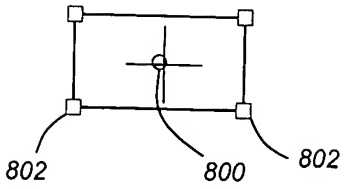


FIG. 8B

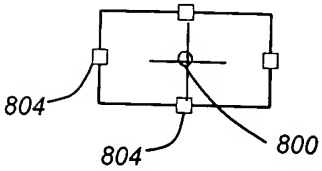


FIG. 9A

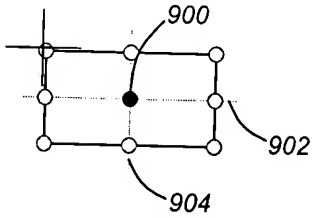


FIG. 9B

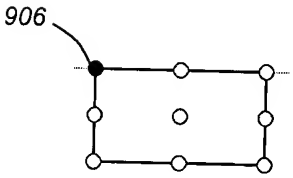


FIG. 10

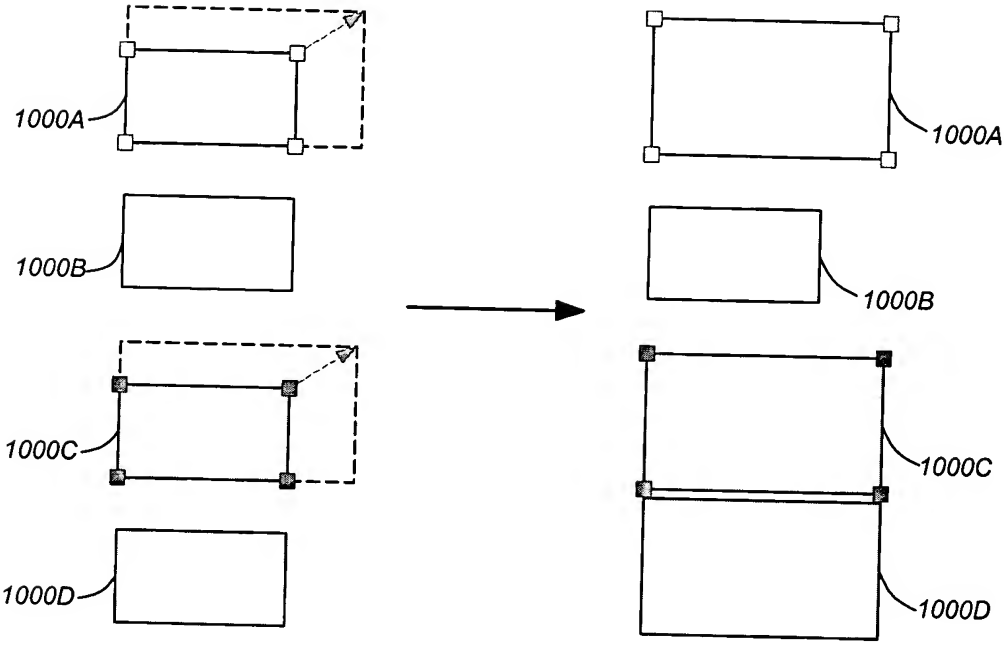


FIG. 11

Color	Name	Description
	Object	Use to indicate that the value being edited by the grip will only affect the selected object.
	Object Light	Use for grips not in a horizontal plane, to help differentiate them from the usually more numerous horizontally oriented grips.
	Object Dark	Also used for Free Form Mass Element Face grip, for faces pointing away from the viewport.
	Secondary Object	Use to identify a set of grips on one object that is related to another object being edited. For example, if the anchor of a door in a wall is being edited, the door's grips use the Object grip color, and the grips aligned with the wall use the Secondary Object grip color.
	Style	Use to indicate that the value being edited by the grip is a style value, and will affect all objects with the same style as the selected object.
	Auxiliary	Use for miscellaneous grips that do not immediately change an object's properties. Examples: changing edit state or changing the current shape being edited.
	Auxiliary Dark	Use for Free Form Mass Element Edit Face grip, for faces pointing away from the viewport.
	Hover	The color of a grip when the user has snapped to it, but hasn't selected it. Used to provide feedback to the user when there are many grips in a small area.
	Selected	The color of a grip once it has been selected.

FIG. 12A

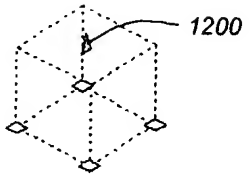


FIG. 12B

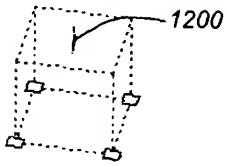


FIG. 12C

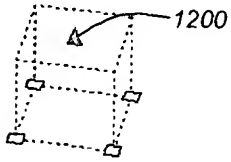


FIG. 12D

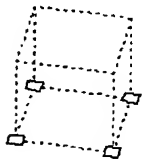


FIG. 13A

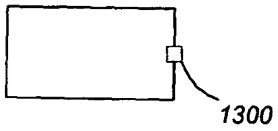


FIG. 13B

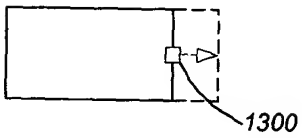


FIG. 13C

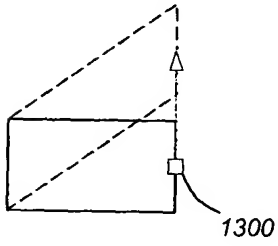


FIG. 13D

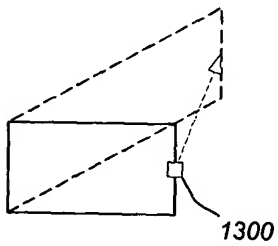


FIG. 14A

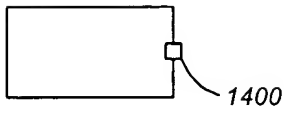


FIG. 14B

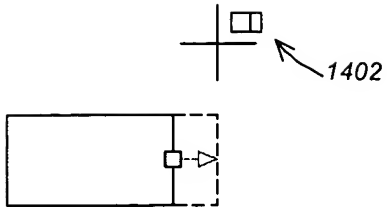


FIG. 14C

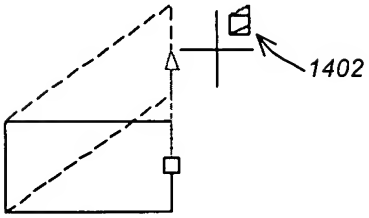


FIG. 14D

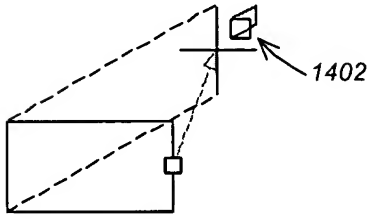


FIG. 16

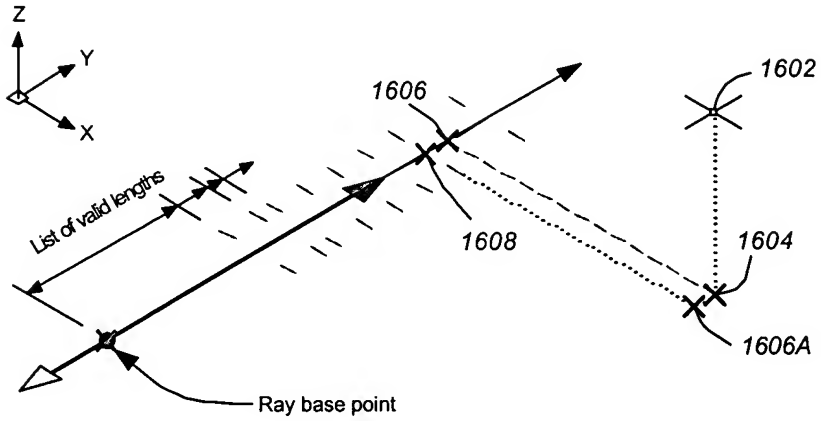


FIG. 15A

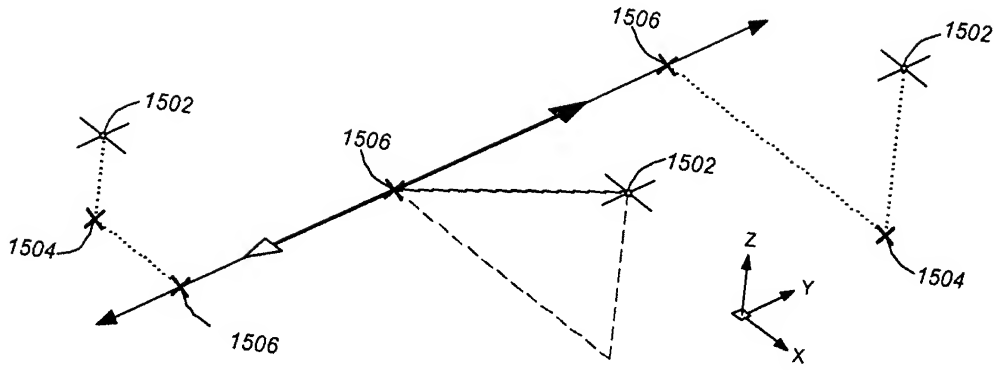


FIG. 15B

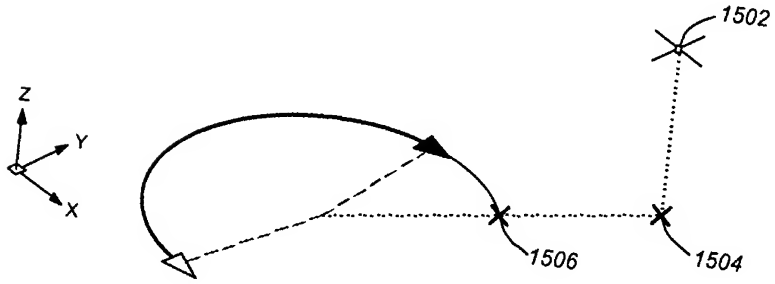


FIG. 17

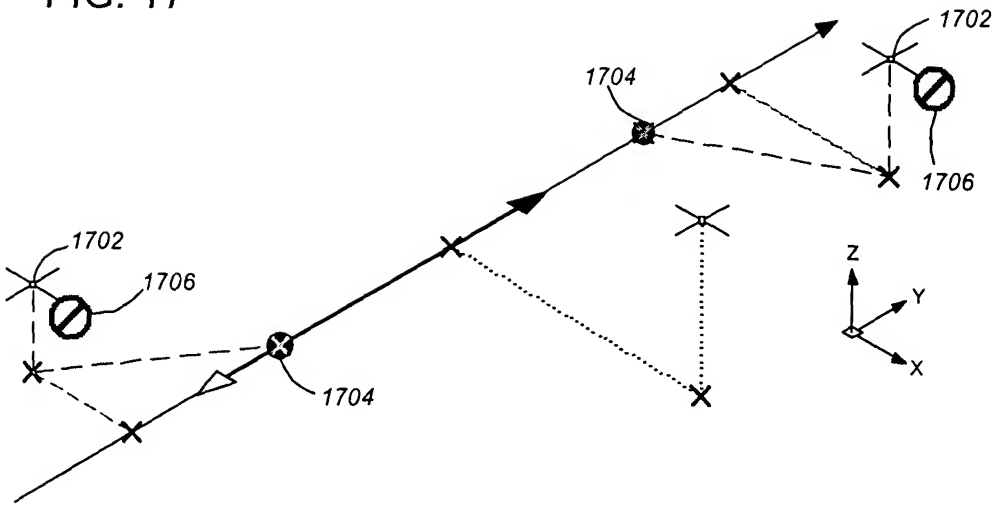


FIG. 18A

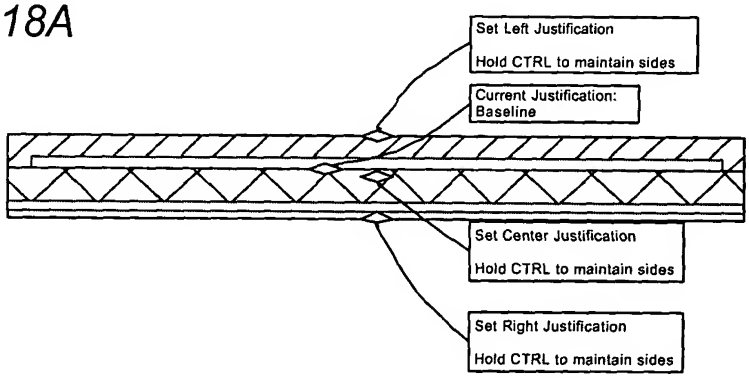


FIG. 18B

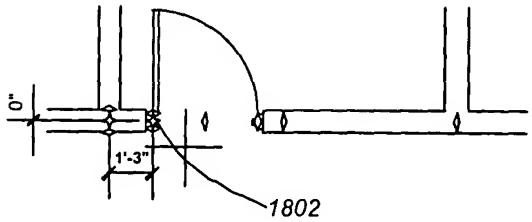


FIG. 19

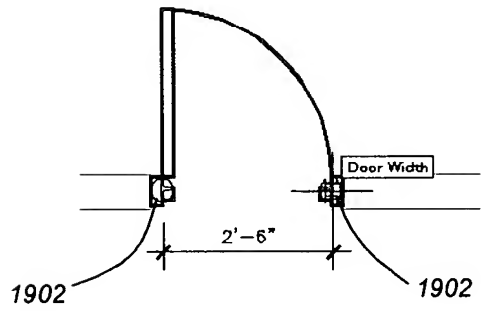


FIG. 20A

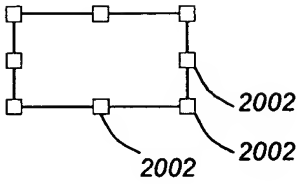


FIG. 20B

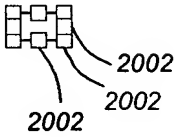
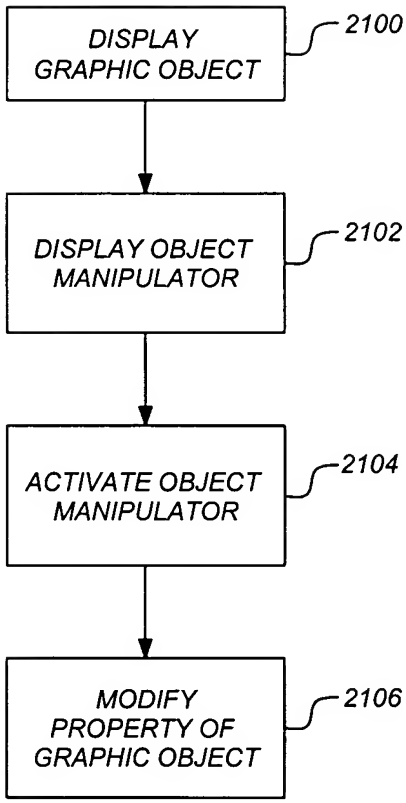


FIG. 20C

FIG. 21


DISPLAY GRAPHIC OBJECT
2100
DISPLAY OBJECT MANIPULATOR
2102
ACTIVATE OBJECT MANIPULATOR
2104
MODIFY PROPERTY OF GRAPHIC OBJECT
2106